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Decision-Making in a Distributed Global Environment (DDGE): Lessons from Web-Based Education (WBE)

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Abstract

Outsourcing is changing the decision-making environment. Tasks are becoming distributed and geographically dispersed. Groups must make decisions in a virtual environment. Virtual group collaboration efforts are quite different than face-to-face groups. Virtual group dynamics can be simulated from virtual groups used in web-based education (WBE). Both environments have many common elements. Experiences gained from WBE can then be extended to global virtual groups. This paper addresses issues related to virtual teams in a cross-cultural environment in a WBE environment and extends them to virtual global teams.

Introduction

In the borderless economy, outsourcing has become a major cost cutting tool for multinationals. Outsourcing is touching all operational aspects of the organization, i.e., manufacturing, software development, telemedicine and IT services. Outsourcing started small but is becoming a giant industry as is evident by the latest results of giant outsourcing companies like Infosys and Wipro, India. These companies are growing at almost a rate of 35% every year. Many researchers (Engardio, 2006; King 2005) are rating off shoring as one of the most important developments of the current century--making virtual group decision-making in a distributed environment a necessity and a reality.

Many issues arise when members and/or tasks are geographically dispersed. These issues to some extent have been studied in the context of virtual groups in WBE. This paper looks at issues in the context of virtual teams in WBE and their implication for distributed decision making for global virtual teams.

Tasks and Nature of Outsourcing

Watson & Carlson (1982) identified three broad task types: structured, semi-structured and unstructured. Initial outsourcing/off shoring involved structured tasks. However, the focus is shifting to outsourcing/off shoring semi-. or even mission critical tasks. As companies develop confidence and mature (Carmel et al., 2002; Helper et al., 2004), these organizations are beginning to outsource middle managers' tasks. This is creating more virtual teams that must work together irrespective of time and location in real time. It is becoming important to understand the factors and dynamics of virtual teams. The next section describes virtual global teams and web-based learning.

Global Virtual Teams

Global virtual teams have been defined in many different ways by different researchers (Pinsonneault, 2005; Lipnack, 2000; Sobol, 1995), but they all have the following general characteristics:

- Work on a task together
- Diverse group
- Geographically distributed
- Different time zones
- May include team members from different organizations
- Different languages, cultures
- Socially different strata

In virtual teams, collaboration, communication, and above all, trust (Souren et. al., 2005) become critical. In some ways, these teams mirror teams in an on-line course environment where students are also physically dispersed, perhaps in different time zones, with different ethnic, race, cultural and national backgrounds, but work in a group to achieve common goals. WBE requires virtual communication and virtual teamwork. The following sections define WBE, global teams and the relationships among them.

DDGE and WBE

As already mentioned, WBE and decision making in a distributed global environment (DDGE) have many similarities in terms of:

- Virtual Team structure
- Collaboration: to achieve goals
- Distance: geographically dispersed
- Diversity: mix of gender, race and nationalities

Instead of re-inventing the wheel, theWBE environment can be used as a surrogate for global virtual teams to study factors that enhance virtual group productivity. The following section describes a WBE experiment.

An Experiment

This study involves the webMBA program at a northeastern urban university in the U.S. WebMBA is completely online and has a diverse mix of students. These include working students from the west and students from developing countries. Students never meet formally and in most cases, only know each other through the forum. Students work in a virtual environment. One of the learning objectives of the MBA program is to develop teamwork skills: by participation in discussions, group case analyses/presentations, and team-based applications work. A database management systems course was used to examine group issues in virtual settings. Six groups of 3- 4 students were formed. Though several projects were assigned, we will discuss one particular project that required extensive group communication. This project involved several steps:

- Develop entity-relation diagram
- Normalize relations

This task requires extensive communication to analyze problems, develop specifications, draw ER diagrams and normalize relations. Working students are concerned about grades since many are reimbursed by their companies and this project accounted for 25% of their final grade. In addition, in order to motivate students to participate actively, team members were asked to rate other team members for their contribution, availability and initiative. This was to become part of their project grade. Peer evaluation puts pressure on group members to contribute to the group's success.

A group forum area was created for each group to interact, post comments and post documents for asynchronous communication. A chat room was also available for synchronous communication. The following section analyzes the interaction.

Interaction, Trust & Group Dynamics

The forum or bulleting discussion and interaction have been used in experiments to learn about group interactions and cause and effect (Wu et. al., 2004;Erik, 2003;Clulow et al., 2001). This study was conducted to evaluate group interaction, and the project was of two-weeks in duration. Members were expected to post comments and communicate with group members in the group forum. Legitimate communication on the forum provided insights into the volume and, to some extent, trust among group members. Following is the number of legitimate communications in each group on the forum. This does not include emails that students might have sent directly to each other. Table 1 summarizes the level of communication among group members. Level is defined as number of legitimate postings in the forum.

Group	Level of Communication
Group 1	119
Group 2	52
Group 3	5
Group 4	18
Group 5	75
Group 6	32

Table 1: Interaction among Groups

From Table 1, it appears the dissatisfied groups (1 and 5) produced more group interactions than any of the others. This may be due to divergent views, personality conflicts and/or lack of trust among group members. Since group members were asked to rate each other, there appears to be general distrust among group members dominated by a single member (i.e., groups 1 and 5). What was surprising is that Group 1 had the most relevant postings in the forum.

Many researchers (Souren, et al, 2005; Paul et al., 2005; Jarvenppa, et al., 2004) have advocated interpersonal trust as an important factor in-group communications. To study the trust level, we analyzed group postings. Several comments unrelated to the project were noticed. Over time, many group members posted messages of a personal nature, which demonstrated the \ increasing trust among group members. Groups were analyzed

to study the trust issues and group dynamics in terms of leadership, how tasks was handled and the willingness to work with the same group again. Table 2 summarizes the results.

Group	Will work Again	Leader Selected	Task division
1	No	Not formally	No
2	Yes	No	Yes
3	Yes	Not formally, changing leader	Worked together
4	Yes	Not formally	Worked together
5	Yes	Not formally	Yes
6	Yes	Yes	No

Table 2 : Group Dynamics & Trust

Table 2 shows that members of Group1 were most dissatisfied with their group and did not trust each other. These group members did not want to work together on future projects. The following section discusses the results of the experiment.

DISCUSSIONS

This exploratory study has shown that virtually distributed groups, typically, do not have formally elected leaders. Leaders evolve and revolve as needed. Group members tend to pick up the slack for other group members, and groups tend to work on collaborative documents at their convenience. Four out of the six groups used the collaborative document feature allowing them to work on the project at their convenience. Groups tend to work on projects better when there is some communication between the leader and team members. Excessive communication, however, between leader (teacher) and team is not desirable and can be counter-productive. This is an important factor for global groups where excessive communication between client (leader) and outsourced company (team) can create problems, due to differences in social status, culture and perception of master-client relationship. Team members may be reluctant to ask too many questions, especially if the client (leader) is persistently present during the discussion.

In two groups, tasks were divided formally. In one, the whole group worked on the entire project together, and in the other, two group members filled in as needed. It appears all three models worked well based on the final outcome of the group project. One group developed a formal structure of deliverables by deadlines while others preferred to work on an as-needed basis. Several group members reported developing “trust” in each other, and felt that group members helped them understand the problem, stepped in when needed and took up the slack of other group members when needed. In any transactional distance (Kemery, 2000; Moore, 2003) problems were solved without the instructor’s interference.

As already mentioned, there was one dysfunctional group whose members were most dissatisfied with the group dynamics. This was a result of one person taking complete charge and doing all the work himself or herself, not allowing the division of tasks or the "free" participation of other members. This frustrated the other group members who did not like to be dominated by one person and resented working in such a group. The implication is that a strong personality can destroy group dynamics and result in unhappy members. This, however, may not necessarily result in sub -optimal group outcome as is evidenced by the performances of Group 1.

While this is an exploratory study, the experiments provide some important insights into the workings of virtual groups separated by distance. One characteristic that will be more predominant in globally distributed decision- making and should be further studied, is language and culture. In most outsourcing projects, "English" is the predominant language of communication (as in this experiment), but in DDGE, local team members may communicate in local languages to minimize transactional distances. Though many cultures were represented in our experiment, we believe team members were more "western" culture savvy and may not reflect "real" local culture. To minimize cultural conflicts, it may be desirable to provide "local" training to both sides (outsourcing and the client company).

This study has several limitations. It is based on one experiment and limited sample size. It needs to be replicated to reinforce group interaction and trust issues within groups. It lacks the "real" mix of culture among group members. Further studies needs to be conducted in this regard.

Conclusion

The literature is quite sporadic on decision-making in a distributed environment. Many questions arise when work is done in virtual teams. How will the teams communicate? How is "trust" developed in virtual teams when they are scattered globally? This paper has addressed some issues in the context of virtual teams in a WBE course. Virtual teams were built and their interaction and preferences were observed, and their success was measured by their performance on the project. Several issues were identified that are critical to virtual teams. Field experiments need to be performed to validate and augment the result of this study.

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